CLAIMS

1. A method of determining position using a global position satellite (GPS) signal, comprising:

receiving at a receiver a first GPS signal from a first GPS satellite at a first position of the first GPS satellite;

receiving at the receiver a second GPS signal from the first GPS satellite at a second position of the first GPS satellite; and

determining a position of the receiver using the first and second GPS signals.

2. The method of claim 1, further comprising receiving at the receiver a third GPS signal from the first GPS satellite at a third position of the first GPS satellite.

3. The method of claim 2, further comprising using the third GPS signal to determine the position of the receiver.

4. The method of claim 2, further comprising receiving at the receiver a fourth GPS signal from the first GPS satellite at a fourth position of the first GPS satellite.

5. The method of claim 4, further comprising using the fourth GPS signal to determine the position of the receiver.

6. The method of claim 4, further comprising using the third and fourth GPS signals to determine the position of the receiver.

7. The method of claim 2, further comprising receiving at the receiver a fourth GPS signal from a second GPS satellite at a first position of the second GPS satellite.

8. The method of claim 7, further comprising using the fourth GPS signal to determine the position of the receiver.

9. The method of claim 7, further comprising using the third and fourth GPS

signals to determine the position of the receiver.

10. The method of claim 1, further comprising receiving at the receiver a third GPS signal from a second GPS satellite at a first position of the second GPS satellite.

11. The method of claim 10, further comprising using the third GPS signal to determine the position of the receiver.

12. The method of claim 10, further comprising receiving at the receiver a fourth GPS signal from the second GPS satellite at a second position of the second GPS satellite.

13. The method of claim 12, further comprising using the fourth GPS signal to determine the position of the receiver.

14. The method of claim 12, further comprising using the third and fourth GPS signals to determine the position of the receiver.

15. The method of claim 10, further comprising receiving at the receiver a fourth GPS signal from a third GPS satellite at a first position of the third GPS satellite.

16. The method of claim 15, further comprising using the fourth GPS signal to determine the position of the receiver.

17. The method of claim 15, further comprising using the third and fourth GPS signals to determine the position of the receiver.

18. The method of claim 1, wherein the position of the receiver is determined using a time difference related to an elapsed time between the first and second GPS signals.

19. The method of claim 1, wherein position of the receiver is determined according to the following equations:

$$\sqrt{(x1-x)^2+(y1-y)^2+(z1-z)^2}+c\Delta t=p1$$
$$\sqrt{(x2-x)^2+(y2-y)^2+(z2-z)^2}+c\Delta t=p2$$
$$\sqrt{(x3-x)^2+(y3-y)^2+(z3-z)^2}+c\Delta t=p3$$
$$\sqrt{(x4-x)^2+(y4-y)^2+(z4-z)^2}+c\Delta t=p4 \quad \text{.....(1)}$$

wherein $p1, p2, p3, p4$ are the pseudo ranges, c is the speed of light, Δt is a difference between time at a satellite and time at the receiver, $(x1, y1, z1)$, $(x2, y2, z2)$, $(x3, y3, z3)$ and $(x4, y4, z4)$ represent position data received at four different times $t1, t2, t3, t4$: and

$$\sqrt{(x1-x)^2+(y1-y)^2+(z1-z)^2}-\sqrt{(x2-x)^2+(y2-y)^2+(z2-z)^2}=k1$$
$$\sqrt{(x2-x)^2+(y2-y)^2+(z2-z)^2}-\sqrt{(x3-x)^2+(y3-y)^2+(z3-z)^2}=k2$$
$$\sqrt{(x3-x)^2+(y3-y)^2+(z3-z)^2}-\sqrt{(x4-x)^2+(y4-y)^2+(z4-z)^2}=k3 \text{ .....(2)}$$

wherein (x,y,z) are position coordinates of the receiver and

$p1-p2=k1$, a constant;

$p2-p3=k2$, a constant; and

$p3-p4=k3$, a constant.

20. An apparatus for determining position using a global position satellite (GPS) signal, comprising:

a receiver for receiving a first GPS signal from a first GPS satellite at a first position of the first GPS satellite and receiving a second GPS signal from the first GPS satellite at a second position of the first GPS satellite; and

a processor for determining a position of the receiver using the first and second GPS signals.

21. The apparatus of claim 20, wherein the receiver receives a third GPS signal from the first GPS satellite at a third position of the first GPS satellite.

22. The apparatus of claim 21, wherein the processor uses the third GPS signal to determine the position of the receiver.

23. The apparatus of claim 21, wherein the receiver receives a fourth GPS signal from the first GPS satellite at a fourth position of the first GPS satellite.

24. The apparatus of claim 23, wherein the processor uses the fourth GPS signal to determine the position of the receiver.

25. The apparatus of claim 23, wherein the processor uses the third and fourth GPS signals to determine the position of the receiver.

26. The apparatus of claim 21, wherein the receiver receives a fourth GPS signal from a second GPS satellite at a first position of the second GPS satellite.

27. The apparatus of claim 26, wherein the processor uses the fourth GPS signal to determine the position of the receiver.

28. The apparatus of claim 26, wherein the processor uses the third and fourth GPS signals to determine the position of the receiver.

29. The apparatus of claim 20, wherein the receiver receives a third GPS signal from a second GPS satellite at a first position of the second GPS satellite.

30. The apparatus of claim 29, wherein the processor uses the third GPS signal to determine the position of the receiver.

31. The apparatus of claim 29, wherein the receiver receives a fourth GPS signal from the second GPS satellite at a second position of the second GPS satellite.

32. The apparatus of claim 31, wherein the processor uses the fourth GPS signal to determine the position of the receiver.

33. The apparatus of claim 31, wherein the processor uses the third and fourth GPS

signals to determine the position of the receiver.

34. The apparatus of claim 29, wherein the receiver receives a fourth GPS signal from a third GPS satellite at a first position of the third GPS satellite.

35. The apparatus of claim 34, wherein the processor uses the fourth GPS signal to determine the position of the receiver.

36. The apparatus of claim 34, wherein the processor uses the third and fourth GPS signals to determine the position of the receiver.

37. An apparatus for determining position using a global position satellite (GPS) signal, comprising:

a receiver for receiving a first GPS signal from a first GPS satellite at a first position of the first GPS satellite and receiving a second GPS signal from the first GPS satellite at a second position of the first GPS satellite; and

a position calculation unit for determining a position of the receiver using the first and second GPS signals.

38. The apparatus of claim 37, further comprising a controller for detecting a number of usable satellites that can be used to determine position.

39. The apparatus of claim 37, further comprising a stationary measurement request and selection unit for requesting that the user remain stationary during determination of position.

40. The apparatus of claim 37, wherein the position calculation unit comprises a time difference measurement determiner which requests that the user remain stationary during determination of position if a number of usable satellites is below a threshold.

41. The apparatus of claim 37, wherein the position calculation unit comprises a time difference measurement calculator which calculates the position by measuring time

differences between GPS signals.